JOURNAL OF APPLIED BEHAVIOR ANALYSIS 2001, **34,** 233–236 NUMBER 2 (SUMMER 2001)

FUNCTIONAL ASSESSMENT OF HAND FLAPPING IN A GENERAL EDUCATION CLASSROOM

MICHAEL M. MUELLER, HEATHER E. STERLING-TURNER, AND DOROTHY SCATTONE

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

A functional assessment of hand flapping exhibited by a 5-year-old boy was conducted in a general education classroom. After a descriptive analysis ruled out several potential variables maintaining hand flapping, an experimental analysis was used to test the hypothesis that teacher-delivered task demands were functionally related to hand flapping. Results of the experimental analysis were used to develop a simple intervention for hand flapping.

DESCRIPTORS: classroom-based functional assessment, curricular modifications, functional analysis, hand flapping

Research has shown that modifying instructional and curricular variables based on functional assessments can significantly affect students' behavior (Kern, Childs, Dunlap, Clarke, & Falk, 1994). Due to recent federal mandates, school psychologists are now faced with the challenge of designing ecologically valid functional assessment procedures for educational settings. Although special education teachers have been taught to implement functional analyses successfully (e.g., Watson, Ray, Sterling-Turner, & Logan, 1999), few studies have explored the utility of recruiting assistance from general education teachers to implement functional assessments (e.g., Harding et al., 1999). The goal of the present study was to extend previous research by using brief indirect, descriptive, and experimental analyses to develop an intervention for problem behavior exhibited by a typically developing child in a general education classroom.

We thank the administration at Petal Elementary School, Petal, Mississippi, and Mrs. Murdock and Mrs. Brown, the teachers in the classroom in which the study occurred.

Correspondence and requests for reprints should be sent to Heather E. Sterling-Turner, Department of Psychology, Box 5025, University of Southern Mississippi, Hattiesburg, Mississippi 39406-5025 (E-mail: hturne@ocean.otr.usm.edu).

METHOD

Participant and Setting

Jake, a 5-year-old boy of typical development who attended kindergarten in a public school, was referred for a functional assessment of hand flapping. The teacher reported that the behavior occurred only during a morning group activity. Initial informal observations revealed that two separate activities were conducted during this time, even though children remained seated on the floor in the same location for both activities. The first activity was a language arts lesson in which the teacher required the students to respond orally, as a group, to flashcards. Informal observations indicated that hand flapping rarely occurred during this activity. The second activity was a social studies lesson in which the teacher read sections of books or showed pictures as she described a topic. Few task demands were delivered during the social studies lesson, but students were required to sit and listen to the teacher. High levels of hand flapping occurred during this activity. Based on this information, subsequent descriptive and experimental analyses were conducted during the social studies lesson. Periodic observations also were conducted in the language arts lesson across all phases of the study.

Response Measurement and Reliability

Data were collected using 15-s partial-interval recording. Each observation was 15 min long and was conducted by one or two advanced school psychology graduate students seated adjacent to Jake. Data were collected on prespecified student, teacher, and peer behaviors. Teacher and peer behaviors were categorized as either antecedent to or a consequence of student behavior. Behaviors were recorded if they occurred at any point during an interval. Antecedents included task demand (verbal statement from the teacher requesting a student response) and teacher initiates other (verbal statement without demand). Data also were collected on hand flapping (waving, swinging, or shaking arms or hands at least twice without stopping). Consequences included teacher looks (teacher's head orients to Jake), teacher attention (any verbal statement to Jake), and peer attention (peers on either side look at Jake; any peer points to, laughs at, or verbalizes to Jake). Informal classroom observations indicated that Jake never left his spot during morning group and never had access to tangible objects, suggesting that contingent escape and contingent access to tangible items were unlikely to maintain hand flapping.

A second observer collected data during 32% of the observations. Interobserver agreement was calculated by subtracting the number of disagreements from the number of agreements, dividing by the total number of intervals, and multiplying by 100%. An agreement was scored if both observers marked an interval identically. A disagreement was scored if intervals were marked differently. Mean interobserver agreement was 93% (range, 85% to 100%).

Procedure

Baseline. Baseline observations were conducted during both morning activities. The teacher was instructed to teach both activities as she had when the referral was initiated. Data from this condition were used for the descriptive analysis and served as the low task demand condition for the experimental analysis, which investigated a putative negative relationship between task demands and hand flapping.

High task demands. The experimenter cued the teacher to deliver task demands to the group or to Jake during the social studies lesson at a level that approximated the lowest percentage of demands delivered during the language arts lesson (i.e., about 60% of intervals). An observer raised his or her hand to signal the teacher to deliver a task demand during approximately 36 of the 60 intervals in each session. Cued intervals were determined prior to the observation so that the 36 intervals were interspersed across the session. The teacher occasionally delivered noncued task demands or did not respond to observer cues, creating some variability in the number of demands delivered each session. The teacher delivered a task demand to Jake by asking him a question or by requesting information relevant to the ongoing lesson (e.g., "Jake, have you ever been to the zoo?") or to the group by requesting a response from everyone (e.g., "Raise your hand if you've been to the zoo."). The high task demand condition differed from baseline only by the increased frequency of task demands. The two conditions were alternated in a reversal design.

RESULTS AND DISCUSSION

Results of the descriptive analysis conducted during the four social studies lessons in the first baseline phase are displayed in Table 1. The proportion of hand flapping that occurred prior to and following each prespecified antecedent and consequence was calculated. For antecedents, conditional probabilities were computed by dividing the

Table 1
Conditional Probability Results for Hand Flapping

Relationship	Instances	Probability	Range
Hand flapping given task demands	9/152	6%	0% to 12%
Hand flapping given teacher initiates other	149/152	98%	92% to 100%
Hand flapping followed by teacher looks	3/152	2%	0% to 9%
Hand flapping followed by teacher attention	0/152	0%	0%
Hand flapping followed by peer attention	6/152	4%	0% to 9%
Hand flapping followed by no social consequence	143/152	94%	86% to 100%

Note. Percentages represent conditional probabilities for hand flapping given task demands in the same or previous interval, for hand flapping given the presence of teacher intiates other, and for hand flapping followed by social consequences during the social studies lesson from the first baseline phase.

total number of intervals in which a specific antecedent occurred in the same interval as hand flapping or in the preceding interval by the total number of intervals containing hand flapping. For consequences, conditional probabilities were computed by dividing the total number of intervals in which a specific consequence occurred in the same interval as hand flapping or in the following interval by the total number of intervals containing hand flapping. Results indicated that hand flapping rarely followed task demands and that social consequences rarely followed hand flapping.

Figure 1 shows the percentage of intervals containing hand flapping and task demands during social studies and language arts lessons across baseline and high task demand

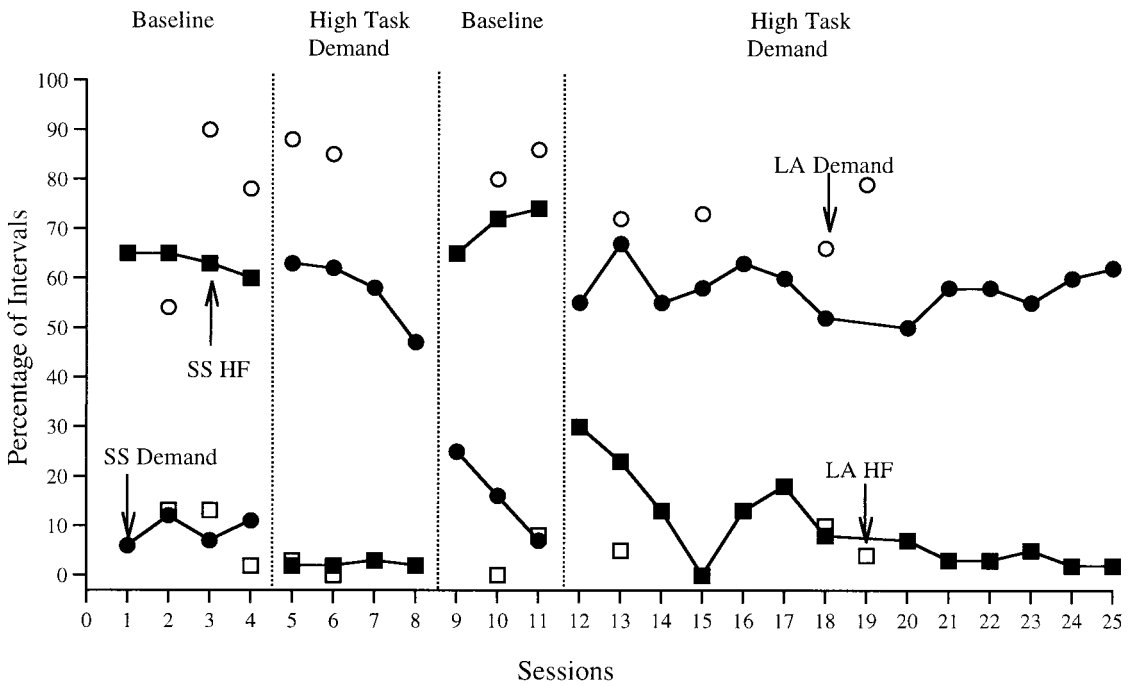

Figure 1. Percentage of intervals containing hand flapping (HF) and task demands across social studies (SS) and language arts (LA) lessons. Closed circles represent task demands during SS. Open circles represent task demands during LA. Closed squares represent hand flapping during SS. Open squares represent hand flapping during LA.

conditions. When task demands were low during the social studies lesson (baseline), hand flapping occurred at high levels. When the teacher increased task demands during social studies, hand flapping decreased to low levels. Across all phases of the assessment, hand flapping remained low and task demands remained high during the language arts lesson. These findings supported the hypothesis that level of task demands or task engagement was negatively related to hand flapping and indicated a relatively simple intervention for Jake's hand flapping during group activities.

Results of the brief descriptive and experimental analyses suggested that social consequences had a limited role in the maintenance of hand flapping. Although the behavior appeared to be maintained independent of social consequences (i.e., by automatic reinforcement), it is possible that the behavior was maintained on a very thin schedule of attention. Furthermore, the exact process responsible for the reduction in hand flapping under the high demand condition is unclear. It is possible that the addition of task demands provided a high level of stimulation that competed with the reinforcement available for hand flapping. An alternative explanation is that hand flapping covaried with task engagement. However, data on task engagement were not collected.

To date, few studies have examined the use of functional assessment procedures with typically developing students in the general education classroom. Functional assessments may lead to simple, effective classroom interventions, decreasing the need for further traditional psychoeducational assessment and placement in more restrictive settings. Brief, combined approaches to functional assessment may be desirable in the school setting because they are efficient. Recruiting the teacher's assistance for the assessment may increase the ecological validity of the results.

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Received June 30, 2000
Final acceptance February 3, 2001
Action Editor, Dorothea C. Lerman